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ABSTRACT

Although teachers have long used both rewards and punishments as incentives for listening, previous studies were inconclusive concerning the relationships between listening effectiveness and types and amounts of incentives given to listeners. The effects of different amounts of punishment and reward incentives (defined by varying additions and deductions of grade points) on listening skills (defined by performance on the "Brown-Carlsen Listening Comprehension Test") were used to predict higher general listening scores for conditions of no versus extrinsic incentives, higher immediate recall scores in stronger incentive conditions, and higher reflective listening scores in milder incentive conditions. None of the hypotheses were supported by the data, leading to the conclusion that there is no basis for the use of external incentives in the classroom as a means of positively influencing listening performance. (BLB)

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THE EFFECT OF REWARD AND PUNISHMENT INCENTIVES ON LISTENING COMPREHENSION

F. H. Goodyear

Petrie summarized a widely-held and seemingly-unquestioned belief that performance in listening comprehension will vary as a function of the listener's motivation, "The importance of motivation in learning activities has been well established, and it is axiomatic that motivation is one of the primary conditions essential to listening comprehension."[1]

Despite the treatment of this point as a truism by many, the research evidence on it is somewhat equivocal. In fact, very few studies have attempted to manipulate extrinsic incentive factors to produce changes in listening comprehension behavior. Blubaugh conducted a study using six experimental groups: control, instruction, motivation, information and motivation, information and instruction, and information. The motivation was a promise of monetary reward. Only two group mean scores actually showed a gain on the post-test and neither was statistically significant.[2] Bohn and Frandsen, using grade incentive reward and non-reward for both audiovisual and audio media reported significantly higher scores for the audio-reward group, but not for the audiovisual-reward group or for the two unmotivated groups.[3] Bowdidge attempted to compare the effectiveness of listening instruction and "listening motivation." The instruction was sixteen tape-recorded listening lessons, delivered either by one individual or by a variety of voices, and the "listening motivation" was sixteen one-minute admonitions. He reported a significant improvement for all experimental groups combined as compared to a control group, but found a significant

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difference among groups only for the "variety of voices" instruction group.[4]

Although numerous studies have been conducted in an attempt to relate intrinsic factors of incentive, such as anticipatory set and the interests of the auditors, to comprehension of material, no clear-cut, systematic pattern has evolved.[5] The ambiguity of findings such as these led Lewis and Nichols to conclude "that good listeners seem to find interesting elements in almost any or all topics for discussion, and that poor listeners frequently find a topic 'dry'."[6] This statement implies that interest may be a by-product of efficient listening rather than a prerequisite to it.

Hypotheses

None of these studies, however, answered the question of the effect of types and amounts of incentives on listening skills. None attempted to manipulate punishment as an incentive nor to determine if different amounts of reward would produce differential effects. Common pedagogical practices, however, employ both rewards and punishments as incentives. The type and amount of incentive is most frequently a reflection of the teacher's personality and pedagogical theory, ranging from "Won't you please listen" to "If you don't listen, I'm going to...."

The purpose of this study was to measure the effect of different amounts of punishment and reward incentive on listening skills as exhibited within a typical pedagogical situation. To do so, students took parts of the Brown-Carlsen Listening Comprehension Test, Form AM[7] under different conditions of reward and punishment incentive. These incentives were

manipulated by instructing the subjects that their grades in a university course would be raised or lowered by the test outcome. The first hypothesis was that subjects who received extrinsic incentives would score significantly higher than would subjects who received no incentive. The second hypothesis was that subjects in the strong incentive conditions would score significantly higher than subjects either in the mild incentive or in the no incentive conditions on test items of immediate recall. The third hypothesis was that subjects in the mild incentive condition would score significantly higher on test items involving reflective listening than would subjects in the strong incentive condition.

Definitions

Punishments and Rewards

For this study the following operational definitions were used:

Strong punishment was defined as a ten-point deduction from a subject's semester grade in a speech course.

Mild punishment was a three-point deduction from the semester grade.

Strong reward was a ten-point addition to the semester grade.

Mild reward was a three-point addition to the semester grade.

Students' responses to a questionnaire of a preliminary study formed the basis for the operational definitions of punishment and reward incentives. From a student-generated list of potential punishments and rewards, pedagogically-appropriate incentives were selected and pre-tested. From the list thus obtained, eight punishments and nine rewards were ranked by one hundred undergraduate students. The two significant areas of punishment and reward which concerned students were ego maintenance and

grades. Grades were arbitrarily selected because they are more clearly quantifiable.

Immediate Recall and Reflective Listening

Two listening skills suggested by the authors of the Brown-Carlsen test were isolated by internal analysis of the test. Immediate recall was defined as those skills involved in the short term memory of specific items, facts, or information. Reflective listening was defined as the synthesizing of ideas and concepts from orally presented material. Operationally, immediate recall was defined as Part A, questions 1 through 17 and Part E, questions 56 through 68. Reflective listening was defined as Part C, questions 38 through 45; Part D, questions 46 through 55; Part E, questions 69 through 76. Part B was omitted due to the time factor.

Methodology

Subjects

Undergraduate students (N=142) from the School of Arts and Sciences at the University of Texas at Austin enrolled in basic speech courses were randomly divided into five groups: two punishment incentive groups, two reward incentive groups, and a control.

Group conditions were as follows:

10 point punishment incentive	(N=26)
3 point punishment incentive	(N=28)
Control	(N=30)
3 point reward incentive	(N=28)
10 point reward incentive	(N=30)

Procedures

Immediately before testing, students in the experimental groups were told that the new departmental policy was to require instructors to

adjust grades in the speech class in accordance with performance in listening comprehension. The punishment subjects were told that 3 or 10 points would be deducted from their semester grade for a score below 85% on the test. The reward subjects were told that 3 or 10 points would be added to their semester grade for a score above 85% on the test. The control subjects were told that the test was for their own benefit only and had no relation to the course or their grades. The cognitive impact of the incentives was verified before testing by having each subject write a brief statement of the consequences of the test to him. After testing, the emotional impact was verified by an attitude survey. Following this survey, the subjects were told of the deception and the true nature of the experiment.

Results

The data were divided into three categories, recall scores, reflective listening scores, and total test scores. Each category was analyzed by a single classification analysis of variance which revealed a significance level below .10 for reflective listening but non-significant results for the other two categories. Data are given in Table 1. The first hypothesis, incentive versus no incentive, was tested by Duncan's Multiple Range Test.[8] For reflective listening, the three-point punishment condition produced an inhibiting effect significantly different from the control and from the three-point reward and the ten-point punishment conditions, but not significantly different from the ten-point reward condition. For the total test scores, the three-point reward and the three-point punishment groups reached the point of significant difference in range, but neither was significantly different from the other three groups.[9] No significant

TABLE 1

ANALYSIS OF VARIANCE OF THE GROUP SCORES
FOR THREE CATEGORIES OF LISTENING TEST DATA

Immediate Recall

Source	S.S.	d.f.	M.S.	F	P
Total	1,289.40	141			
Between Groups	40.93	4	10.23	1.12	> .25
Within Groups	1, 248.47	137	9.11		

Reflective Listening

Source	S.S.	d.f.	M.S.	F	P
Total	1,069.77	141			
Between Groups	61.23	4	15.31	2.08	< .10
Within Groups	1,008.54	137	7.36		

Total Scores

Source	S.S.	d.f.	M.S.	F	P
Total	3,015.54	141			
Between Groups	110.70	4	27.68	1.31	> .25
Within Groups	2,904.84	137	21.20		

differences were found among the five groups for immediate recall. Data are given in Table 2.

The second hypothesis, strong incentives versus mild incentives and strong incentives versus no incentives for recall, was tested by use of multiple comparison t tests.[10] The strong incentive versus mild incentive comparison produced a non-significant t value of .473. The strong incentive versus no incentive comparison produced a non-significant t value of .893.

To test the third hypothesis, mild versus strong incentives for reflective listening the multiple comparison t test was again used.[11] The comparison produced a non-significant t value of 1.17.

Discussion

The first hypothesis, that subjects who received extrinsic incentives would score higher on a standardized listening comprehension test than subjects who received no incentive, was not supported. The only experimental group to differ significantly from the control was the three-point punishment group for the reflective listening skill and this variation was an inhibiting, not an incremental, effect.

The second hypothesis, that subjects in the strong incentive conditions would score significantly higher than subjects either in the mild incentive conditions or subjects in the no incentive condition on test items of immediate recall, likewise was not supported.

The third hypothesis, that mild incentive subjects would score significantly higher on test items involving reflective listening than would high incentive subjects, was also not supported. Interpretation of the statistical analysis of this hypothesis was largely confounded by the

TABLE 2

GROUP MEAN COMPARISONS ON SUBTESTS AND TOTAL TEST

Tests	Conditions				
	10 Point Punish-ment	3 Point Punish-ment	Control	3 Point Reward	10 Point Reward
Immediate recall	21.85_a*	22.18_a	21.73_a	23.04_a	22.83_a
Reflective Listening	18.11_b	16.46_a	18.03_b	18.18_b	17.73_{ab}
Combined	39.96_a	38.64_a	39.76_a	41.22_a	40.56_a

*Means across a row which share a common subscript are not significantly different from one another ($p<.05$).

fact that the three-point punishment was the smallest, and the three-point reward was the largest, of the four means involved. However, since none of the means for the experimental groups was significantly larger than the control mean, again the change seems to be largely the inhibiting effects on the three-point punishment group.

Incentives are always difficult to quantify and to validate and admittedly it is impossible to determine positively the exact effect of the incentives used in this study. However, they appear to be pedagogically sound and similar to those in common use in classrooms today. Because the incentives used were student-generated, it appears justifiable to assume that they were to a large degree meaningful to the subjects. The subjects' responses to the debriefing questionnaire further indicate that a large majority of the subjects believed the incentive story. Therefore, to assume that the incentives were impactful, likewise, seems justified. However, additional research using greater incentives and different forms of incentives would be enlightening.

The results of the study appear to support the contention by Kelly[12] that the subjects' knowledge that they are being tested acts as an incentive factor influencing listening comprehension. Specifically the results indicate that to the degree that external incentives affect listening test scores, the idea of being tested alone provides very nearly the maximum practical level of incentive. At least from studies to date, additional external incentives appear to be of little consequence, and in some instances may actually be detrimental. Alternatively, it might be concluded that to a substantial degree a person's listening test performance

in a pedagogical setting is a product of his previous learning and is not significantly influenced by externally applied incentives alone. In this case perhaps teachers should not be so ready to accept the truism that external incentives will produce a clear-cut improvement in listening performance.

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[1] Charles R. Petrie, Jr., "The Listener," in Listening: Readings, ed. Sam Duker (New York, 1966), p. 338.

[2] Jon A. Blubaugh, "An Experimental Study of the Effects of Information, Instruction, and Motivation on Listening Behavior," Unpublished master's thesis (University of Kansas, 1962).

[3] Thomas W. Bohn and Kenneth Frandsen, "Immediate and Delayed Recall as a Function of Mode of Presentation and Anticipation of Reward," Central States Speech Journal, XV (November 1964).

[4] John S. Bowdidge, "The Influence of Tape-Recorded Listening Lessons and 'Listening-Motivation' Bulletins Upon the Listening Ability of High School Students," Dissertation Abstracts, XXVII (March 1968), 3545A-3546A.

[5] Howard Gilkinson, Stanley F. Paulson, and Donald E. Sikkink, "Conditions Affecting the Communication of Controversial Statements in Connected Discourse: Forms of Presentation and the Political Frame of Reference of the Listener," Speech Monograph, XX (November 1953), 253-260; Mary E. Karraker, "An Evaluation of the Influence of Interest and 'Set' on Listening Effectiveness in the Basic Communication Class," Speech Monographs, XIX (June 1952), 117-118; Milton E. Marten, "The Relationship Between Expressed Interest and Listening Skills of Children in the Sixth Grade," Dissertation Abstracts, XIX (March 1959), 2295-6; Martha Ann Heath, "A Study of Listening: The Relationships Between Interest, Educability, and Score on an Objective Examination over the Factual Content of an Informative Speech," Speech Monographs, XIX (August 1952), 195-160; Charles T. Brown, "Studies in Listening Comprehension," Speech Monographs, XXVI (November 1959), 288-294; Francis A. Cartier, "An Experimental Study of the Effect of 'Human Interest' Factors on Listening," Speech Monographs, XXIX (March 1955), 53-57.

[6] Thomas R. Lewis and Ralph G. Nichols, Speaking and Listening (Dubuque, Iowa, 1965), p. 24.

[7] James I. Brown and Robert G. Carlsen, Brown-Carlsen Listening Comprehension Test (Yonkers, N.Y.: World Book Co., 1955).

[8] David B. Duncan, "Multiple Range and Multiple F Tests," Biometrics, XI (March 1955), 1-42.

[9] All computations for the Duncan test employed 4 and 137 degrees of freedom. The shortest significant ranges employed $\alpha = .05$ for the significant studentized ranges. The protection level for the shortest significant ranges computed by the formula $(1 - \alpha)^{k-1}$ is .8145.

[10] Roger E. Kirk, Experimental Design: Procedures for the Behavioral Sciences (Belmont, Calif., 1968), pp. 69-76. For the first comparison of this hypothesis weights were assigned to the groups in the order listed in Table 2 as follows: 1/2, -1/2, 0, -1/2, 1/2. For the second comparison the weights assigned were -1/2, 0, 1, 0, -1/2. The MS error term used was the unbiased estimate of the population error variance for recall and d.f. = 137.

[11] Weights were assigned as follows: -1, +1, 0, +1, -1. The MS error term used was the unbiased estimate of the population error variance for reflective listening and d.f. = 137.

[12] Charles M. Kelly, "Listening: Complex of Activities--And a Unitary Skill?" Speech Monographs, XXXIV (November 1967).